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EXAMINER	
LIOU, JONATHAN	
ART UNIT	**PAPER NUMBER**
2663	

DATE MAILED: 01/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/010,530	FURUKAWA, HIROSHI	
	Examiner	Art Unit	
	Jonathan Liou	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8-11,14-16 and 18-20* is/are rejected.

7)☒ Claim(s) *6,7,12,13 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This office action is in response to applicant's paper filed 12/29/2005. Claims 1-20 as amended are currently pending in the application. Applicant has amended claims 12. Claims 1-5, 8-11, 14-16, and 18-20 stand rejected.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1 and 19 are rejected under 35 U.S.C. 102(a) as being anticipated by Wallentin et al. (US Pat. No. 6,347,091.)

3. As per claim 1, Wallentin et al. teach a data transmission method in a relay transmission type radio network (**Fig. 2, Wallentin et al.**) including a core node connected to a wire network (**MMTS Core Network Node could be interpreted as core node as claimed and wire network could be PSTN/ISDN or Internet. See Fig. 2 and col 5, lines 26-43, Wallentin et al.**), relay nodes relaying a down-link packet transmitted from said core node and an up-link packet directed toward said core node and a terminal station capable of transmission and reception of packet with both of said core node and said relay node (**Base stations could be interpreted as relay nodes as claimed. Wallentin et al. teach the packet could be transfer on uplink or downlink direction between mobile station and UMTS Core Network node. See**

col 5, lines 26-43. Fig. 2 shows Mobile terminal as terminal station could transmit and receive of packet with core network node) comprising:

a registration step for registering with a relay node list held by the node, as a pair, ID information on said terminal station and a relay source node included in the up-link packet transmitted by said terminal station, in each of said core node and said relay node (**Wallentin et al. teach the registration step for registering with a routing area held by the node, and identification of mobile station and the nearest base station. The mobile station registers the information and stores on the network. Sending from mobile station to UMTS node is considered the uplink. See col 5-6, lines 56-19, Wallentin et al.**)

a selection step for selecting a down-link relay route of the down-link packet addressed to said terminal station on the basis of said relay node list, in each of said core node and said relay node (**Wallentin et al. teach for selecting a routing area to mobile station based on the identification message. See col 12, lines 5-17.**)

4. As per claim 19, Wallentin et al. teaches a core node connected to a wire network, and capable of transmission and reception of packet with both of a terminal station and a relay node (**UMTS 16 could be core node, wire network could be PSTN/ISDN 12 and internet 14, and relay node could be base station 23. See Fig. 2**), comprising a relay node list for having recorded ID information on said terminal station and the relay node that is a relay source node included in a received up-link packet and giving a down-link relay route of a down-link packet addressed to said terminal station on the basis of said ID information is provided (**a routing area (relay**

node list) having ID information of mobile station is stored in the network node (core node). The base station could be relay source node and received up-link and downlink routing, and downlink routing follows the basis of ID information of the routing area. See col 5, lines 26-42 and col 6, lines 1-19.)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 2-5, 9-11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin et al. (US Pat. No. 6,347,091.), as applied to claim 1, in view of Chuah (US Pat. No. 6,469,991.), and further in view of Larsen (US Pub. No. 2001/0036810.)

7. As per claim 2, Wallentin et al. teach the data transmission method according to claim 1, but Wallentin et al. does not explicitly teach broadcasting to terminal station and a connection node determination. However, Chuah teaches determining the connection

remote nodes for routing and transmission via broadcasting method, and Larsen teaches setting on ID information on relay source/destination node. The method of Chuah and Larsen teaches following the limitations recited in the claim 2.

a step for periodically transmitting a broadcast packet to said terminal station in each of said core node and said relay node (**The remote hosts/nodes can include any device capable of communication with the base station. The base station broadcasts downlink packets that are destined for one or more of the remotes within its cell. See col 9, lines 9-18. Chuah also teaches broadcast frames one after another; hence, it would be periodically transmitting a broadcast. See col 35, lines 44-51.**)

a connection node determination step for receiving said broadcast packet and determining a connection node out of said core node and said relay node in said terminal station (**Chuah teach remote cells received the broadcast packet and determine allow remote nodes or connections. See col 13-14, lines 51-65.**)

a step for transmitting to said connection node an up-link ACK packet, as said up-link packet, including the ID information on said terminal station and directed toward said core node following a predetermined up-link relay route in said terminal station (**Chuah teaches an acknowledgement message, which could be uplink packet, including the wireless modem's ID (terminal's ID information) following uplink frame, which already determined. The uplink direction is sends to the core network as taught in claim rejection 1. See col 25, lines 57-61, Chuah.**)

a step for, in each of said relay nodes, setting on said received up-link ACK packet the ID information on the relay node as the ID information on said relay source node and transmitting it to a relay destination node (**Larsen teach Mobile stations use synchronization and broadcast transmissions (up-link transmission) from the base stations (relay source nodes) to identify which base station (relay destination source nodes) coverage area they are in and send the message to those base stations. Sec[0015], Larsen.**)

Since Chuah teaches the method of the invention related to routing and QOS of network transmission system (**See cols 4-5, lines 46-3, Chuah.**), Larsen teaches a method of relaying data between mobile stations in a cellular wireless communication system (**See sec[0006, Larsen.**), and Wallentin et al. teaches their system could be easily implement in any mobile communications system (**See col 4, lines 41-60.**); thus, it would have been obvious for one who have ordinary skill in the art at the time the invention was made to use broadcasting to determine the connection nodes, transmitting the packet to connection and setting the relay path for routing the packet because Chuah and Larsen both teach routing or relay data system.

8. As per claim 3, Wallentin et al., Chuah, and Larsen teach the data transmission method according to claim 2, wherein said connection node determination step determines as said connection node recited in the claim 3 as taught in the claim rejection 2. Larsen also teaches a node that transmitted said broadcast packet having the best received quality (**See sec[0022], Larsen.**)

9. As per claim 4, Chuah teaches broadcast packet includes the ID information on the node that transmitted the broadcast packet (**See col 25-26, lines 49-4, Chuah.**)

10. As per claim 5, Larsen teaches broadcast packet includes the ID information on the core node on which the node that transmitted the broadcast packet is dependent (**See sec[0224], Larsen.**)

11. As per claims 9-10,Larsen teaches broadcast packet is transmitted with predetermined transmitting power and uplink packet is transmitted by controlling the predetermined power (**See sec[0158], and sec[0236]-sec[0238], Larsen.**)

12. As per claim 11, the same rationales and basis as applied to claim rejections 1 and 2 are applied.

13. As per claim 15, the same rationales and basis as applied to claim rejections 10 and 11 are applied.

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin et al. (US Pat. No. 6,347,091.), in view of Chuah (US Pat. No. 6,469,991.), in view of Larsen (US Pub. No. 2001/0036810.), as applied to claim 11, further in view of Baker et al. (US Pat. No. 5,570,366.)

15. As per claim 14, Wallentin et al., in view of chuah, in view of Larsen, teaches the method according to claim 11. Their structure do not specifically teach deleting ID information after a predetermined time elapses from the registration. Nevertheless, Baker et al. teach this limitation as taught in the claim rejections 8. Therefore, the same rationale as applied to claim 8 are applied to the remainder of claim 14.

16. Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin et al. (US Pat. No. 6,347,091.), as applied to claim 1, in view of Larsen (US Pub. No. 2001/0036810.)

17. As per claim 16, Wallentin et al. teaches the method of data transmission method according to claim 1. Wallentin et al. does not specifically teach controlling the transmitting power; nevertheless, Larsen teaches controlling the transmitting power to satisfy predetermined received power at the base stations, which could be relay node (**See sec[0158], and sec[0236]-sec[0238], Larsen.**) Since Larsen teaches a method of relaying data between mobile stations in a cellular wireless communication system (**See sec[0006, Larsen.**), and Wallentin et al. teaches their system could be easily implement in any mobile communications system (**See col 4, lines 41-60.**); thus, it would have been obvious for one who have ordinary skill in the art at the time the invention was made to transmitting the packet by controlling transmitting power to meet the required reception power because this would make sure the quality of service through communications. In addition, Wallentin et al. teaches the importance to ensure the high quality (**See col 5, lines 19-25, Wallentin et al.**)

18. As per claim 18, Wallentin et al. teach a relay node relaying a down-link packet transmitted from a core node connected to a wire network and an up-link packet directed toward said core node, and capable of communication with a terminal station, and a relay source node included in the up-link packet directed toward said core node by said terminal station and giving a down-link relay route of the down-link packet addressed to said terminal station on the basis of said ID information (**Wallentin et al.**

teaches UMTS Core Network node 16 (Core node) connected to PSTN/ISDN 12 and Internet 14 (a wire network) (Fig. 2, Wallentin et al.) Wallentin et al. teaches the direction flow of downlink and uplink and capable of communication with a terminal station (**See col 2, lines 13-22, Wallentin et al.**) Wallentin et al. also teaches sends the routing area to base station from mobile station, which is uplink direction flow and base node could be interpreted as relay source node. The network could use this routing area on the basis of ID information. (**See col 6, lines 1-19, Wallentin et al.**) Wallentin et al. does not specifically teach a relay node comprises a relay node list for having recorded ID information on said terminal station. However, Larsen teaches a neighboring node maintains a neighboring list for connecting, and a neighboring list include the destination IDs, which is the final terminal station located (**See sec[0223], Larsen**) Therefore, it would have been obvious for one who have ordinary skill in the art at the time the invention was made for a relay node comprising a relay node list for having recorded ID information on terminal station because Wallentin et al. does teach store routing area identification where the mobile station registered (**See col 6, line14-16, Wallentin et al.**)

19. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin et al. (US Pat. No. 6,347,091.), as applied to claim 1, in view of Baker et al. (US Pat. 5,570,366.)

20. As per claim 8, Wallentin et al. teaches the pair of the ID information on said terminal station and said relay source node are registered with said relay node list as taught for claim rejection 1.

Wallentin et al. does not teach deleting the ID information after a predetermined time elapses from the registration; however, Baker et al. teach after predetermined timeout period, the IP Table entry (**it could be interpreted as the ID information of mobile stations as claimed**) is deleted (**See col 9, lines 18-25, Baker et al.**) Since Baker et al. teaches the invention of ensuring that messages are only transmitted to target stations (**See col 2, lines 33-35, Baker et al.**) and Wallentin et al. teaches finding the routing areas (**See col 6, lines 1-19, Wallentin et al.**), it would have been obvious for one who have ordinary skill in the art at the time the invention was made to delete the ID information from the list after a predetermined time expires from registration because Wallentin et al. does teach registration to the base stations (**See col 6, lines 1-19, Wallentin et al.**) and Baker et al. teach deleting function after timeout of registration (**See col 9, lines 18-25, Baker et al**.)

21. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin et al. (US Pat. No. 6,347,091.)

22. As per claim 20, Wallentin et al. teach of a terminal station capable of transmission and reception of packet with both of a core node connected to a wire network (**Fig. 2, Wallentin et al**.) and a relay node relaying a down-link packet transmitted from said core node and an up-link packet directed toward said core node (**See col 2, lines 13-22, Wallentin et al**.), setting ID information on a source terminal station registered with a relay node list of said core node or said relay node as a pair with ID information on a relay source node (**See col 6, lines 1-45**.) Wallentin et al. does not specifically teach transmit up-link packet to a relay destination node; however,

Wallentin et al. teach based on the downlink packet identification message corresponding to select the connection state and send the state message to network (**See col 12, lines 5-17, Wallentin et al.**) In addition, Wallentin et al. teach the example maybe implement in the uplink direction as well (**See col 13, lines 11-13, Wallentin et al.**) Therefore, it would have been obvious for one who have ordinary skill in the art at the time the invention was made to transmit up-link packet to a relay destination because Wallentin et al. teach the example maybe implement in the uplink direction as well (**See col 13, lines 11-13, Wallentin et al.**)

Allowable Subject Matter

23. Claims 6-7, 12-13 and 17 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

24. Applicant's arguments filed 12/29/2005 have been fully considered but they are not persuasive.

On page 9 of the remarks, Applicants argues Wallentin reference does not teach "relay node list held by the node, as a pair, ID information on said terminal station and a relay source node included in the uplink packet transmitted by said terminal station in each of said core node and said relay node" recited in claim 1. The examiner respectfully disagrees. Wallentin teach mobile stations sends a registration message to the associated network (col 6, lines 3-4.), which is uplink transmission from mobile terminal to Base station (relay node) and core node (See Fig. 2.) The routing areas

includes different routes, which inherently includes a relay source node in the packet for starting the routing areas (col 6, lines 10-12.) Therefore, Wallentin teach a relay source node included in the up-link packet transmitted by terminal station in each of core node and relay node. Wallentin teach the network stores the routing area identification number where the mobile station last registered (See col 6, lines 14-16.) The network could be core node (core network) or relay node (relay network or merely base station.) Therefore, Wallentin teach relay node list held by the node, as a pair, ID information on said terminal station recited in the claim 1. In addition, although Wallentin "the network sends a page to the mobile station, and the mobile station s sends a page response to identify the cell where packets should be" (See col 6, lines 16-19), it does not exclude the network hold a routing areas list because Wallentin does teach the network stores the routing area (See col 6, lines 14-16.) Wallentin teach paging the mobile, could be interpreted as confirming the destination, and response to identify the destination and message packet.

On page 10, Applicants argues Wallentin reference does not teach "relay node list having recorded ID information on said terminal station and a relay source node included in the uplink packet directed towards said core node by said terminal station" Wallentin teach terminal station sends the uplink packet with ID information to registered as described above. Larsen teaches a neighboring node maintains a neighboring list of destination and routing table (See sec [0223]-[0224], Larsen.) The neighboring list could be interpreted as a relay node list as claimed because the routing list is from mobile station to other terminals in Larsen's reference and Wallentin does

teach the routing area, core and relay node as claimed. The limitation of claim 20 is similar to above, the same rational and basis as applied to claim 1 and 19 are applied.

In view of above discussion, the examiner believe Wallentin teaches the limitations of relay node list, Wallentin, in view of Larsen, teach the limitation of relay node list for recording ID information on terminal station. Thus, examiner maintains the rejections for claims 1-5, 8-11, 14-16, and 18-20.

Conclusion

25. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Liou whose telephone number is 571-272-8136. The examiner can normally be reached on 8:00AM - 5:00PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jonathan Liou 1/13/2006

RICKY Q. NGO
SUPERVISORY PATENT EXAMINER